



trains





**to teachers and
parents**

This is a LADYBIRD
LEADER book, one of a
series specially produced
to meet the very real need
for carefully planned
first information books
that instantly attract
enquiring minds and
stimulate reluctant readers.

The subject matter and vocabulary have been selected with expert assistance, and the brief and simple text is printed in large, clear type.

Children's questions are anticipated and facts presented in a logical sequence. Where possible, the books show what happened in the past and what is relevant today.

Special artwork has been commissioned to set a standard rarely seen in books for this reading age and at this price.

Full-colour illustrations are on all 48 pages to give maximum impact and provide the extra enrichment that is the aim of all Ladybird Leaders.

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A Ladybird Leader **trains**

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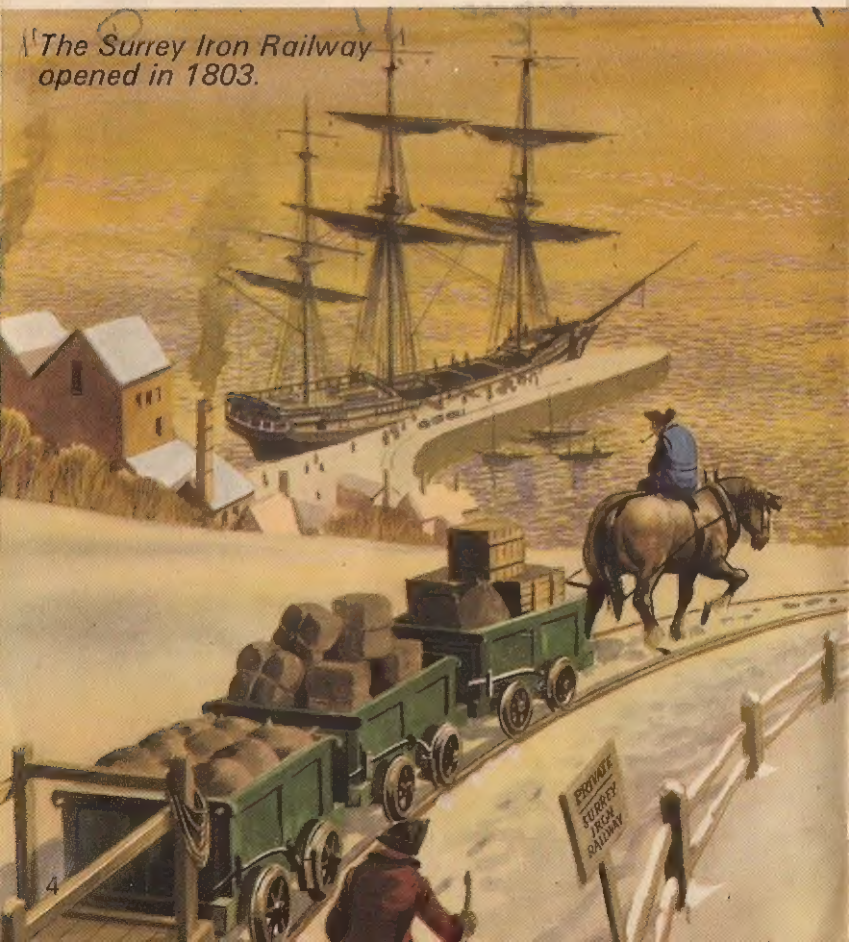
Printed in England

A train pulled by a horse

This was the first public railway in the world.

A horse could pull more wagons on rails than it could on a road.

The Surrey Iron Railway opened in 1803.



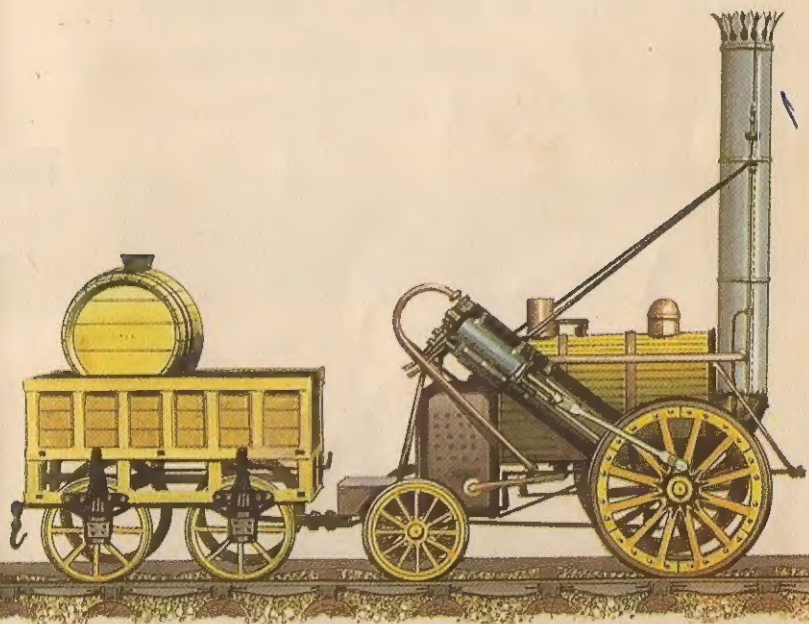
A famous early steam locomotive

The first steam locomotive was built in 1804.

In 1829 Stephenson built 'The Rocket'.

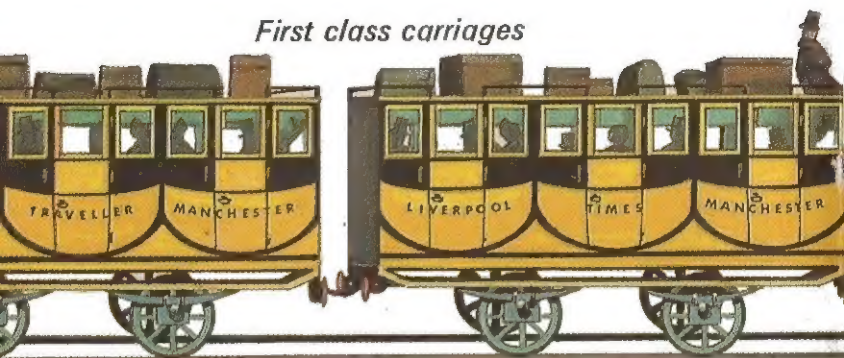
It could pull a full load at 24 miles an hour.

The 'Age of Steam' on the railways had begun.

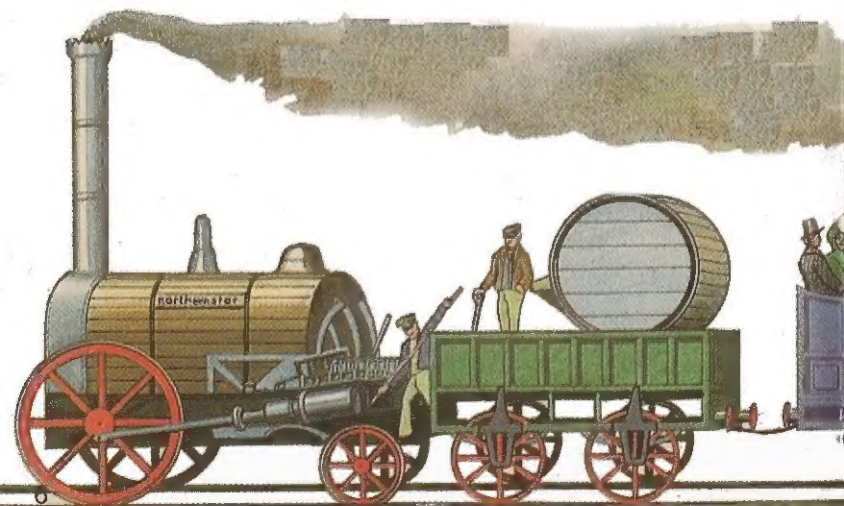


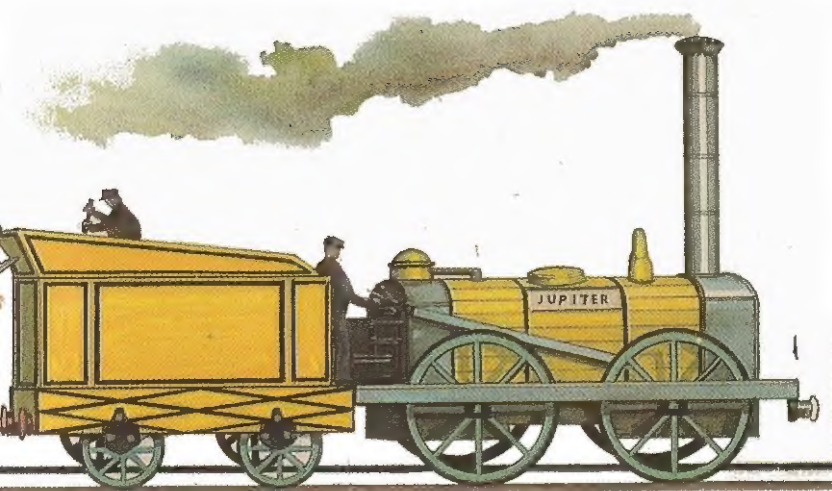
The Liverpool and Manchester Railway

First class carriages



This was the first public railway using only steam locomotives and no horses.





At its opening in 1830,
a Member of Parliament was
run down and killed by a locomotive.

Third class carriages



Bigger locomotives — heavier loads



About fifty years later, locomotives and wagons looked like this.

The engines were more powerful and could pull much greater loads.

Greater comfort — longer journeys



Large main line stations were built.
The carriages were more comfortable.
Because carriages were comfortable,
people made long journeys more often.

Comfort for a Queen

Here is a very comfortable coach.
It was the one Queen Victoria rode in.
Inside, it was furnished like a room
in a house.





Early American locomotives

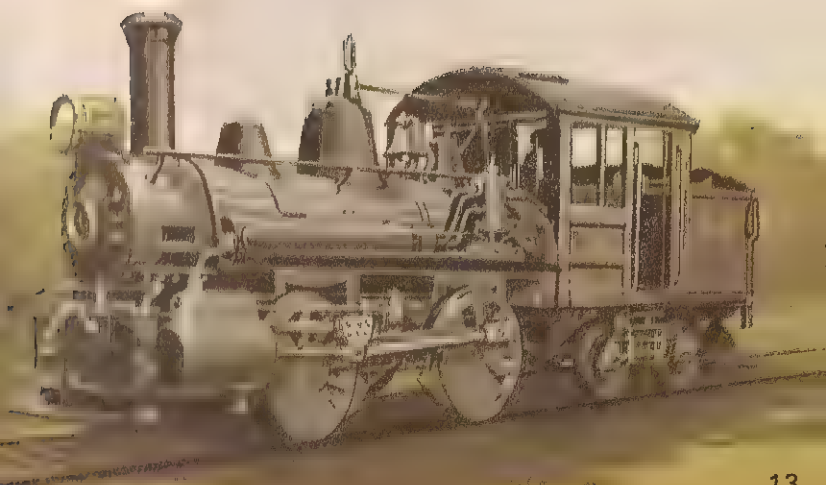
This engine did not burn coal.

It burned wood.

It had a 'cow-catcher' at the front to push away animals.



This was another early American train.
It burned coal.



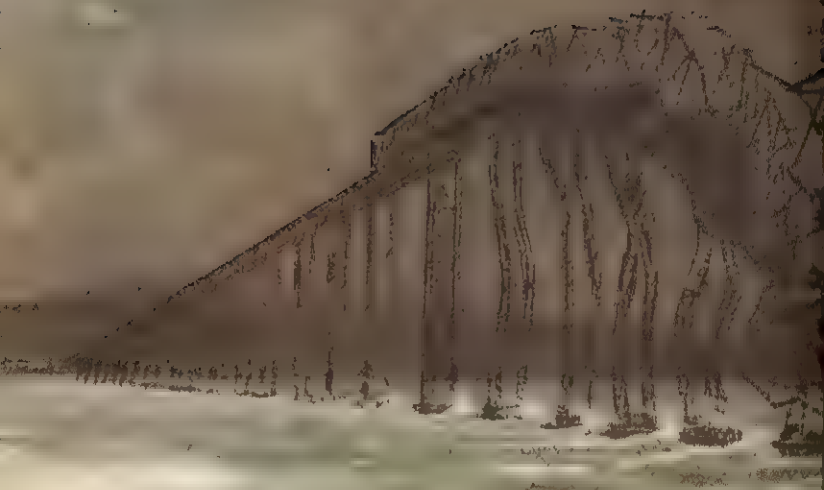
The joining of the Union Pacific and Central Pacific railways





After these railways met in 1869,
people could travel by rail
right across America.

The first big railway accident

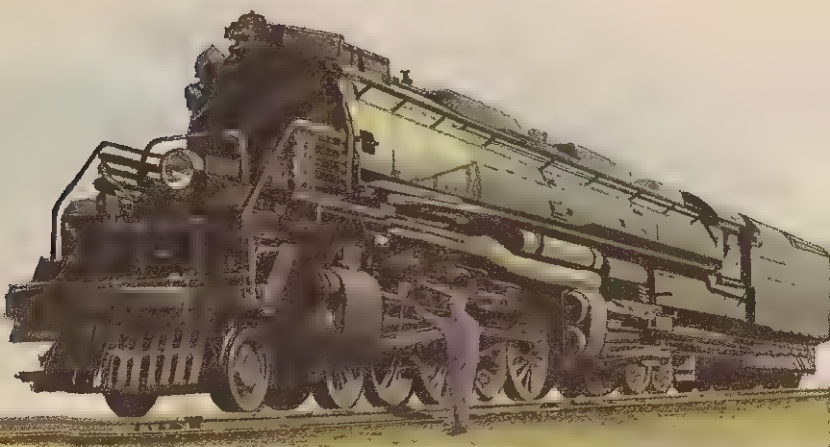


In 1879 the Tay bridge, in Scotland, collapsed in a gale.

A mail train and 80 people fell into the water.



A giant steam locomotive



The 'Big Boy' Union Pacific engines were some of the biggest ever built. They were a hundred times heavier than 'The Rocket'.

'The Mallard' was the fastest
steam locomotive in the world.
In 1938 it reached 126 miles an hour.



Railways that climb steep hills

On this steep railway,
cables connect two 'cars'.

The 'car' going down
helps to pull the other one up.



This railway has a toothed rack
between the rails.

Under the engine, a toothed wheel
turns in the rack.

This pulls the train up steep slopes
where the other wheels would slip.



Small trains

This train is pulled by a model of a famous American locomotive. Children have fun riding on it.

It is called
The Hoot, Toot and Whistle Railway.





This small train
travels in a tunnel under London.
It carries mail for the Post Office.
The train runs without a driver.

Trains that carry cars

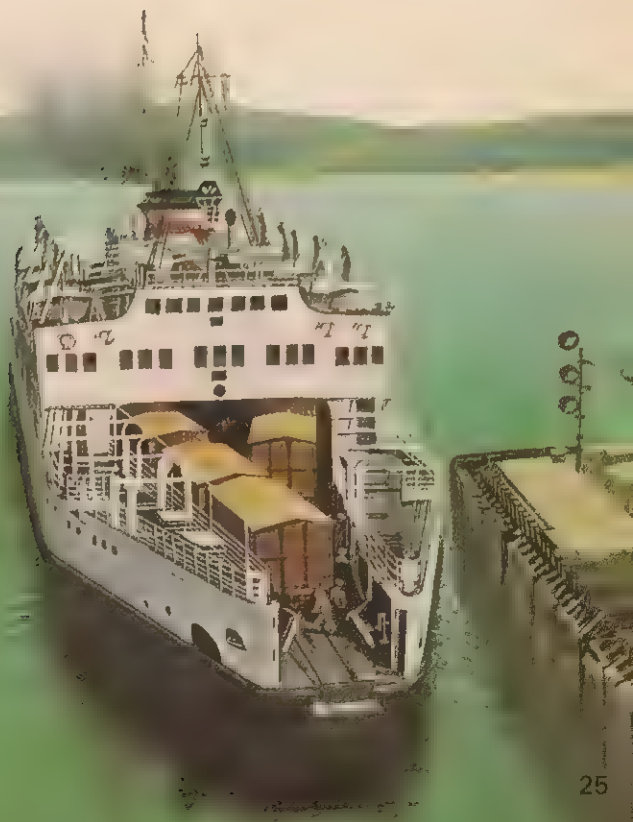
Special trains take new cars from the car factories.

One train can carry as many cars as twenty car transporters on the road.

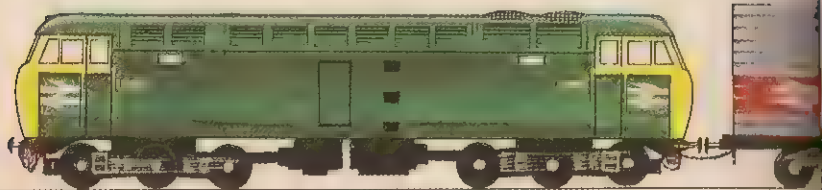


Trains that go by sea

Some ships are built
to carry whole trains across the sea.
The train is driven on to the ship.
These ships are called train ferries.



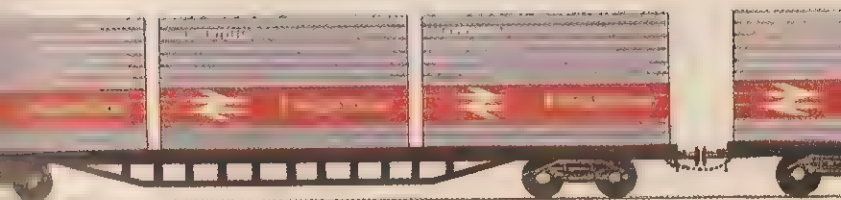
Special freight trains



Some goods are put in big boxes.
These boxes are called containers.
Trains take them to the docks.
Cranes lift them on to special ships.



A container train.



In Australia, sheep are carried in special trucks 85 feet (25.9 m) long. Five locomotives are linked to pull some American coal trains. Each truck (hopper) holds 100 tons.

An American coal train.



A railway across Australia

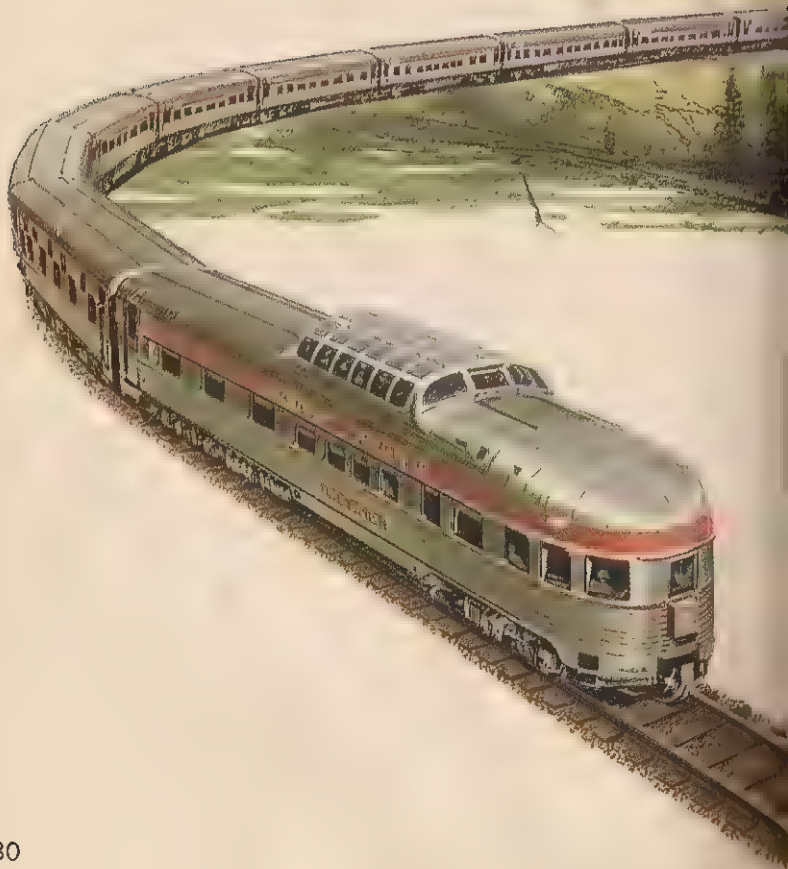
The Indian-Pacific Railway crosses Australia from the Indian Ocean to the Pacific Ocean.

It runs from Perth to Sydney and is more than 2,000 miles long.





A railway across Canada





Every day, 'The Canadian' train runs right across Canada, from Montreal and Toronto to Vancouver. The train has two cars with domes. These give the best possible views.

A railway under the ground



Some cities have underground trains. Without them, there would be much more traffic on the city roads. London has 252 miles of underground railway.

Another sort of underground railway

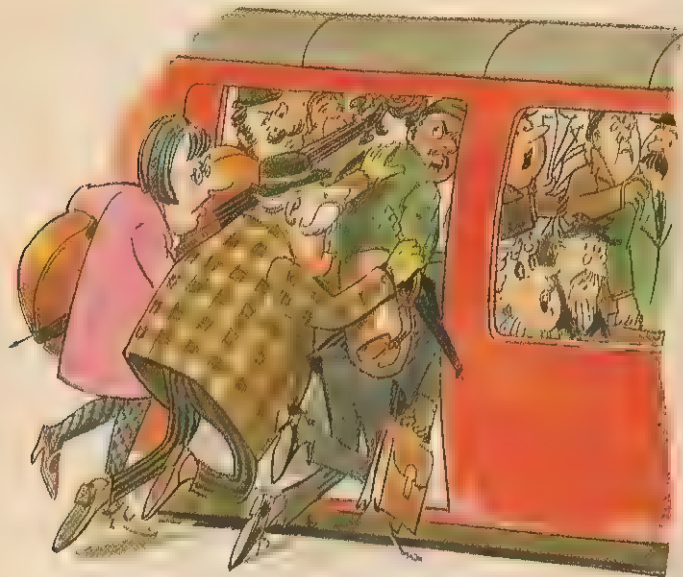


This is a train in a coal mine.

It carries miners to the coal-face
where they work.

This can be a journey of several miles.

Other trains that take people to work



Because they can travel by train,
many people live far from their work.
In the mornings and evenings
the trains are packed.

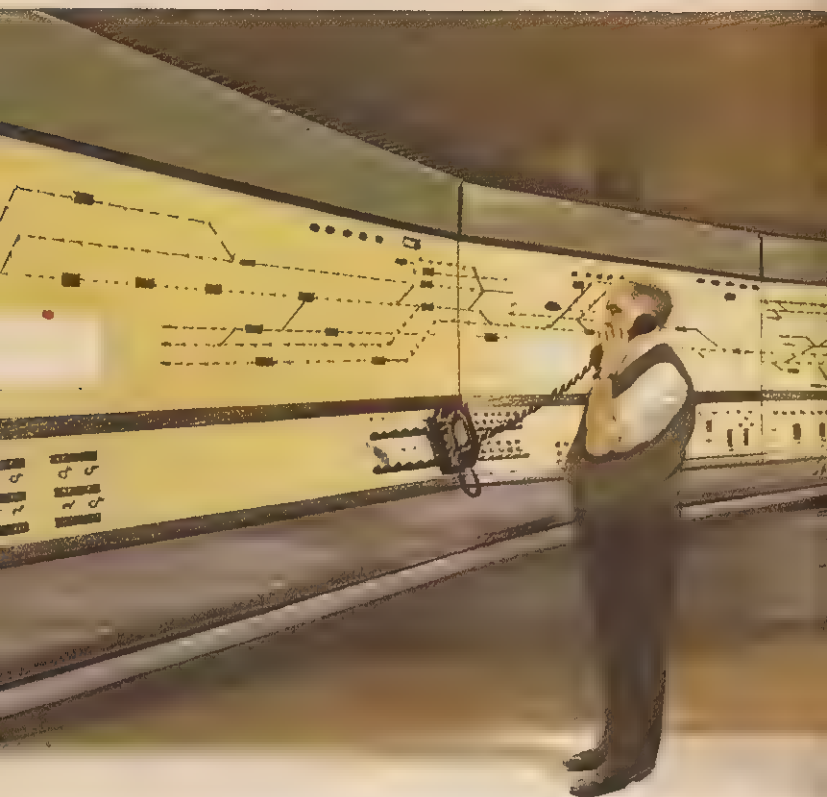
During the rest of the day,
the trains are often nearly empty.

Trains people work in



In mail trains, men sort letters
as the train goes along.
The men work during the night.

Controlling the trains



Inside a modern signal box,
men control the movement of trains.
Moving lights on a board
show where the trains are.



The end of the 'Age of Steam'

Few countries now use steam locomotives.

Most locomotives today are driven by diesel engines or electric motors. They are cheaper to run and need less looking after.



Long-distance trains usually have a separate locomotive to pull them. Some small, local trains have a diesel engine under the car.



Meals on trains



Long-distance trains have dining cars.
Canada had the first in 1867.

Beds on trains



For long journeys at night,
some carriages have beds in them.
The carriages are called sleeping cars.

A powerful, new locomotive

This American locomotive
is driven by a gas-turbine.

It works best on a long run,
pulling a heavy freight train.

Gas-turbine locomotives
are also used
to pull high speed passenger trains.



A train running on one rail

This train has rubber wheels.

They run on a concrete rail.

It is called a 'monorail',
meaning 'one rail'.

On some monorails,
the cars hang below the rail.



A famous Japanese railway

The new Tokaido line, in Japan,
is more than 400 miles long.

This modern electric train travels
at more than 100 miles an hour.





A new British train

The APT (Advanced Passenger Train) is the newest British train.

It can be driven by gas-turbines or electric motors.

It can reach a speed of 150 miles an hour.



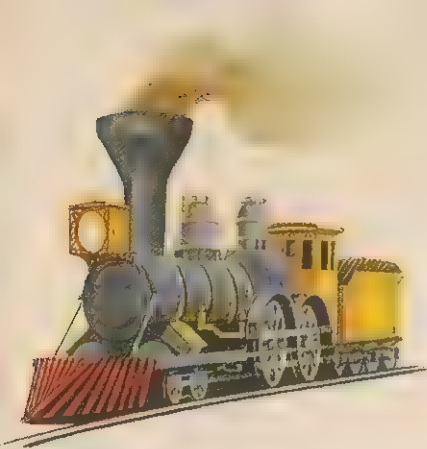


Other ways of travelling

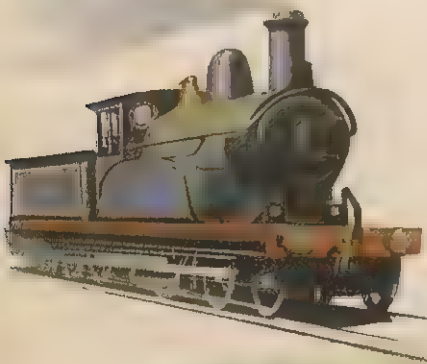
Nowadays, people can travel by road and air as well as by rail. The new trains will be comfortable and fast to attract more passengers.



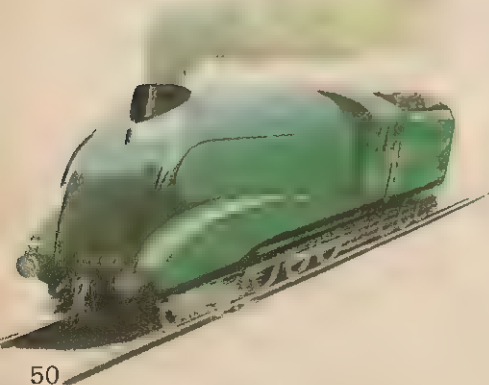




An early American
wood-burning
locomotive.



A steam locomotive
of about 1875.

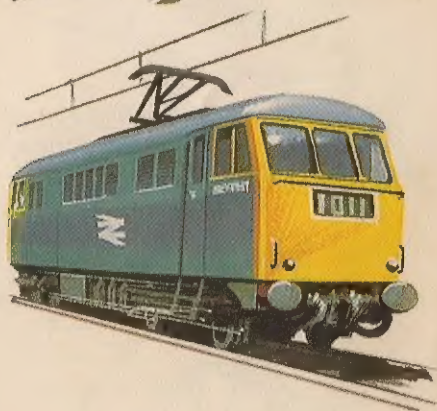


'Mallard'—
the world's
fastest steam
locomotive.

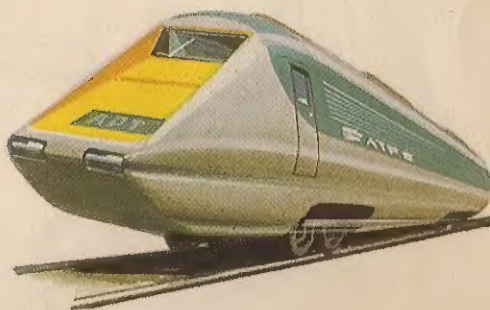
A diesel
locomotive.



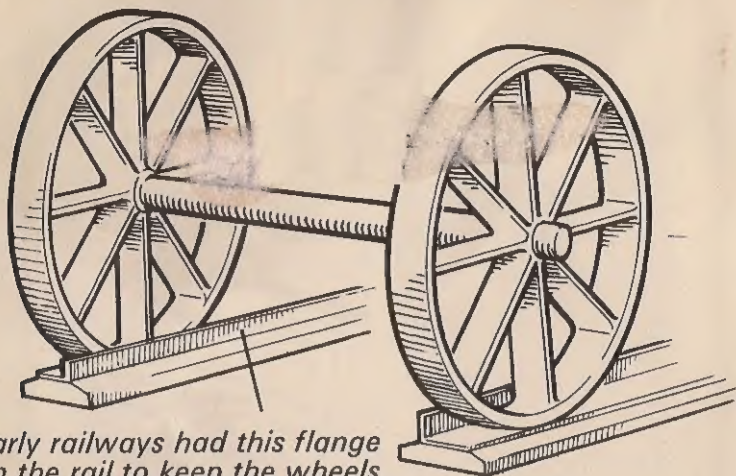
An electric
locomotive.



The newest
British train.

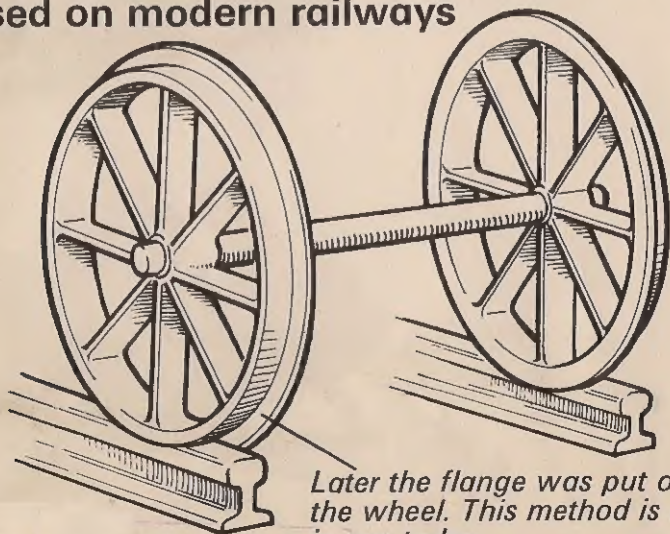


The flanged rail of early railways



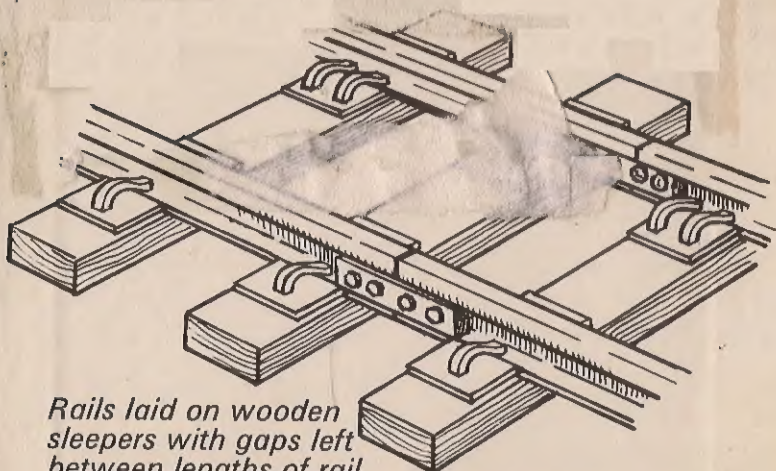
Early railways had this flange on the rail to keep the wheels on the track

The flanged wheels used on modern railways



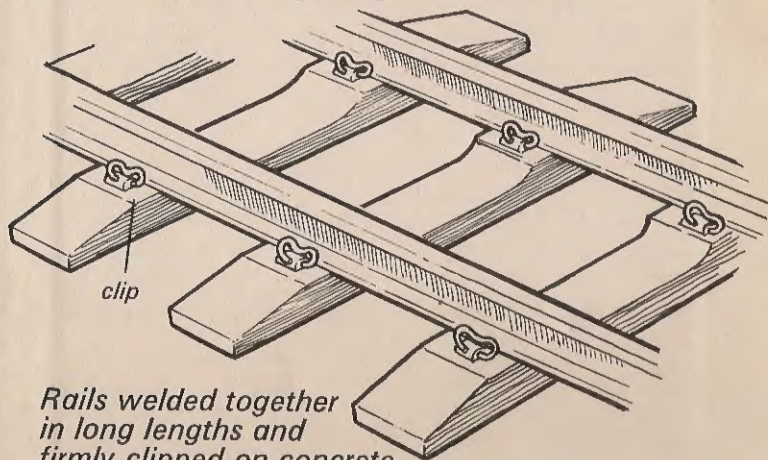
Later the flange was put on the wheel. This method is still in use today

How rails are fixed



Rails laid on wooden sleepers with gaps left between lengths of rail to allow them to expand in hot weather

A modern high-speed track



Rails welded together in long lengths and firmly clipped on concrete sleepers for strength and smooth running.



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